GESTURE MOVIES

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Patent Application No. 61/019,223 filed on Jan. 4, 2008, the contents of which are incorporated herein by reference in their entirety for all purposes.

FIELD OF THE INVENTION

[0002] This relates generally to input devices for computing systems, and more particularly, to the display of gesture movies to aid a user in performing gestures on an input device such as a trackpad.

BACKGROUND OF THE INVENTION

[0003] Many types of input devices are presently available for performing operations in a computing system, such as buttons or keys, mice, joysticks, trackballs, trackpads, touch screens and the like. Touch screens can include a touch sensor panel, which can be a clear panel with a touch-sensitive surface. The touch sensor panel can be positioned in front of a display screen so that the touch-sensitive surface covers part of all of the viewable area of the display screen. Touch screens can allow a user to make selections and move a cursor by simply touching the display screen via one or more fingers or a stylus. In general, touch screens can recognize the touch and position of the touch on the display screen, and a computing system can interpret the touch and thereafter perform an action based on the touch event. Trackpads can also include a touch sensor panel, but the panel need not be transparent because no display screen is involved.

[0004] With touch screens and trackpads as described above, a number of gestures can be recognized by a computing system processing the obtained images of touch. However, it can be difficult for a user to remember the gestures that can be performed, particularly if the available gestures are dependent on the application being executed.

SUMMARY OF THE INVENTION

[0005] This relates to the display of gesture movies to assist users in performing gestures. Gesture movies can be short, unintrusive, and available on demand. A list box can appear in a pop-up window or preference panel containing a list of gestures that can be demonstrated. If a user clicks on a gesture in the list, a video, movie or animation of the gesture being performed can appear in one box, while a video, movie or animation of the action being performed on a particular object can be displayed in another box. Thus, for example, a hand can be shown performing the selected gesture over a touch sensor panel, while at the same time, and synchronized with the gesture being displayed, an object being manipulated by the gesture can be displayed. The object displayed while the gesture is being performed can be predetermined, or it can be a function of the gesture and/or context in which the demonstration is invoked.

[0006] If the gesture movie is an animation, a hand can be shown performing the gesture, with dots, outlines or other indicators indicating the touch points of the fingers on the touch sensor panel. In some embodiments, the hand can then fade out, leaving only the dots remaining to show the gestures being performed. In other embodiments, arrows can appear, disappear, move, grow, shrink, or otherwise appear in other animated ways to indicate the direction and order that fingers or palms should move, and audio may accompany the video or animations, including but not limited to finger touchdown sounds, explanations of the gesture being performed, and the like. Other options would be to light up the area of finger touchdowns, create a "water ripple" effect to show finger touchdowns, or show side or perspective views of the hand in additional boxes to show when the fingers actually touch down.

[0007] A user could possibly start a gesture by touching fingers down on a touch sensor panel, and then pause or "freeze up," not remembering the particular gesture for a given application. In this case, another embodiment of the invention can have the preference panel and a particular gesture movie (video or animation) such as those described above pop up automatically if a touchdown accompanied by a freeze in motion is detected, the video or animation showing how to complete the gesture for that particular application. A motion freeze can be defined in terms of the contact points having movement below a certain threshold for a predetermined amount of time. The particular gesture movie that appears automatically can be a gesture whose starting positions most closely match the fingers or objects touching down on the touch sensor panel. In some embodiments, the displayed gesture movie can reflected the apparent "handedness" of the touchdown points. In other words, if the touchdown points suggest a left hand, the displayed gesture movie can feature a left hand performing the gesture.

[0008] For touch screens such as those on handheld devices, there may not be the luxury of having separate boxes for a list of gestures, the gesture itself, and an object being manipulated by the gesture. Therefore, a list box of gestures can first appear on the touch screen. After the user has selected a gesture from the list, the list box can be replaced with a gesture movie. Because important user interface (UI) features of the object being manipulated may be hidden under the gesture being performed, a semi-transparent hand can appear over the touch screen, with the object being manipulated visible under the hand.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. **1***a* illustrates a display showing an exemplary preference panel including a gesture movie according to one embodiment of this invention.

[0010] FIG. **1***b* illustrates a display showing an alternative exemplary gesture movie according to one embodiment of this invention.

[0011] FIG. **2** illustrates an exemplary popup panel that can appear automatically when finger touchdowns are detected followed by a freeze in motion according to one embodiment of this invention.

[0012] FIG. **3***a* illustrates an exemplary virtual gesture movie control ring according to one embodiment of this invention.

[0013] FIG. **3***b* illustrates another exemplary virtual gesture movie control ring according to embodiments of the invention.

[0014] FIG. **4** illustrates an exemplary touch screen showing gesture movies according to one embodiment of this invention.

[0015] FIG. **5** illustrates an exemplary computing system operable with a touch sensor panel to implement gesture movies and associated features according to one embodiment of this invention.